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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/788,564

02/27/2004

Kenneth Barr

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7590

09/29/2005

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EXAMINER

OWENS, AMELIA A

ART UNIT

PAPER NUMBER

1625

DATE MAILED: 09/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/788,564

Applicant(s)

BARR ET AL.

Examiner

Amelia A. Owens

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3-8-2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27-29 and 31-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-29 and 31-64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1625

DETAILED ACTION

1. Claim 30 has been canceled. Claims 27-29,31-64 are pending. This action is not final as new grounds of rejection are provided herein that were not necessitated by applicants' amendment.

Claim Rejections - 35 USC § 112

2. Claims 27-29,31-64 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for benzofuran compounds of formula I as described in the specification at page 14 paragraph 52, does not reasonably provide enablement for 'compounds that include a cyclic moiety' or 'compounds' as presently claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and or use the invention commensurate in scope with these claims.

Compound 5 clearly demonstrates that benzofuran compounds of formula I as described in the specification at page 14 paragraph 52 are capable of the conformation shift needed to produce binding. The shift occurs because there is noncompetitive binding. Binding at the non-active site causes the protein to change shape such that protein no longer recognizes/acts on the substrate. However, will a change in the structure of the compound produce the dramatic 3-D protein shift needed for binding? Clearly, the skilled artisan would not extrapolate the benzofuran results to compounds structurally removed from compound 5. There is only one (1) compound, compound 5, for which data has been provided.

Response to Arguments/Enablement

3. In the response filed March 8, 2005, applicants provide several arguments against a similar enablement rejection presented in the office action mailed on December 8, 2004. These

Art Unit: 1625

arguments have been considered in full, but are not found to be persuasive for the following reasons.

The examiner recognizes that a disclosure is enabling even if considerable amount of experimentation is involved, if it is *merely routine*; that the legal standard merely requires sufficient disclosure, either through illustrative examples or terminology, to teach those of ordinary skill how to make and use the invention as broadly as it is claimed.

The language at pages 4-7 is particularly noted, but the language merely gives general information about TC-PTP and PTP-1B. Only a single compound, compound 5, is exemplified as noted by applicant. However, in the instant case applicants' use the term 'compounds that include a cyclic moiety', to claim their invention. Applicants' have tested exactly one (1) species; compound 5. Yet, the term 'compounds that include a cyclic moiety' encompasses heterocyclic, non-heterocyclic, cyclic peptides, to name a few. It is the examiner's position that one of ordinary skill in the art would have no basis to extrapolate the results obtained with compound 5 to compounds structurally removed from the tested compound 5. To find a compound that would fit applicants' requirements would require more than *routine* experimentation. Further, "all" compounds would not inhibit PTB-1B or TC-PTB as presently claimed.

Paragraphs 30-35 merely illustrate in detail compound 5. Paragraphs 36-47 refer generically to 'compounds that include a cyclic moiety' as outlined above and describe the requirements that need to be met for the compound. But what –compound that includes a cyclic moiety- is this exactly? What –compounds that include a cyclic moiety- specifically meet these requirements? The language 'compound that includes a cyclic moiety' does not give the skilled

Art Unit: 1625

artisan a starting point. The standard for 35 USC 112 is not you the public pick a compound and if it works, my claim covers it. The specification/claims should not be an invitation to experiment. Merely claiming 'compounds that include a cyclic moiety' is not seen to be sufficient disclosure as described/required in *In re Marzocchi*. While it is improper to limit the assessment of enablement to actual working examples, it is also improper to give applicant a patent for that which applicant does not have possession.

Contra to applicants' assertions, the claims have not been defined by structure.

Applicants' do not have to exemplify all compounds embraced by the claim. However, the only compound exemplified is compound 5. As stated above, one of ordinary skill in the art would have no basis to extrapolate the results obtained with compound 5 to compounds structurally removed from the tested compound 5. For this reason, applicants' have not sufficiently defined the compound by 'structure'.

Contra to applicants' assertions, the claims have not been defined by function. It is generally accepted to define a claim by function where one skilled in the art would have no difficulty in determining the conditions required to obtain a product with such characteristics. However, in the instant case, the complexity of requirements that the compound would have to meet as outlined on pages 4-7 of the specification would seem to create difficulty for the skilled artisan to determine which 'compound that includes a cyclic moiety' could actually be used to practice the claimed invention.

Even though the level of skill in the PTP art is very high, the quantity of experimentation would be undue when faced with a lack of direction and guidance as in the instant case.

Arguably, given proper direction and guidance one of ordinary skill in the art in view of what is

Art Unit: 1625

known in the art would know how to practice the claimed invention. However, allosteric inhibitors of PTP-1b and TC-PTB are novel such that the art cannot supply any direction or guidance. All direction and guidance must come from the specification and it is lacking.

The assay has been noted. Test tube data cannot be extrapolated to human use. It is generally accepted that behavior in a test tube/cell/living organism are all different. From the assay is not clear that there is a correlation to human treatment, i.e. there is no evidence of functional treatment. It is noted that the specification does not contain pharmaceutical compositions containing 'compounds that include a cyclic moiety' according to the invention as a component/active ingredient.

4. Claims 27-29,31-64 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims recite any cyclic compound which includes cyclic peptides, heterocycles, nonheterocycles and functional language, i.e. must contact specific binding site and cause 'major conformational rearrangement'. See column 5 lines 30-35. Thus, the instant claims encompass a potentially enormous genus of compounds (i.e. any compound comprising a "cyclic" moiety), but which must meet very particular structural & functional limitations (i.e. contacting particular points on the enzyme at a putative allosteric inhibitor site and mediate conformation change in the protein that necessarily results in inhibition).

The specification teaches a single compound, compound 5, that acts as a non-competitive inhibitor of PTP-1B. The specification teaches a single example where an x-ray crystal structure has been obtained for PTP-1B and compound 5. This x-ray crystal shows putative contact points for this compound and PTP-1B. The specification does not teach what portions of compound 5 are absolutely essential for the required "major conformational rearrangement" such that the compound acts as an allosteric inhibitor. The only thing that is taught is that these are putative contact points for a single allosteric inhibitor. The specification teaches that TC-PTP is only 68% identical to PTP-1B, and while compound 5 inhibits TC-PTP, it does not do so as well as it inhibits PTP-1B. No crystal structure is shown for compound 5 and TC-PTP, so that it is impossible to conclude that the same putative contact points are necessarily involved and to the same degree as for PTP-1B. Therefore, the instant specification provides no basis to extrapolate from the single embodiment for one compound/enzyme combination and predictably envision those embodiments that necessarily met the structural/functional limitations of the claims.

Allosteric inhibitors of PTP-1B and TC-PTP appear novel in the art. Therefore, the art cannot help provide the skilled artisan a basis for envisioning those embodiments that necessarily meet the functional limitations of the claims.

There is no structural/functional basis provided by the prior art or instant specification for the skilled artisan to envision embodiments necessary to meet the functional/structural limitations of the claims. Thus, one of skill in the art would not have been able to envision a representative number of specific 'compounds that include a cyclic moiety' and which function as allosteric inhibitors in the recited manner to describe the broad genus of compounds

Art Unit: 1625

encompassed by the rejected claims. One of skill in the art would thus have reasonably concluded applicants were not in possession of the claimed invention of claims 27-29,31-64.

5. Claims 27-29,31-64 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This is a new matter rejection.**

The oath being relied upon is for the original application and is dated 6/2003. The language 'compounds that include a cyclic moiety' was added in a preliminary amendment filed on 2/27/2004 and is therefore new matter. The claims as now presented contain new matter with regard to the specification and claims to which the instant oath/declaration refers.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 27-29,31-64 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of U.S. Patent No. 6,784,205 B2 (Barr et al). Although the conflicting claims are not identical, they are not patentably distinct from each other because Barr et al teach compounds, particularly compound 5, used in methods of identifying an exosite inhibitor of TC-PTB and identifying an inhibitor of PTB-1B.

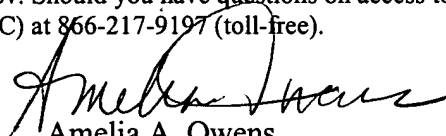
Art Unit: 1625

The Barr et al claims recite compounds that are clearly embraced by the claim language 'compounds that include a cyclic moiety' and are taught to inhibit PTP-1B and TC-PTP. See column 2 lines 39-65. The Barr et al compounds, thus anticipate and necessarily make obvious, the instant genus claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amelia A. Owens whose telephone number is 571-272-0690. The examiner can normally be reached on Monday - Friday from 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Amelia A. Owens
Primary Examiner
Art Unit 1625